

## PROMONT Project - Local Action Plan (LAP) Template for Pilot Areas: **OLYMPUS MOUNTAIN**

### 1. Contextual Introduction

*Provide a concise description of the pilot area, including its geographical, cultural, and socio-economic characteristics, as well as its relevance to PROMONT's objectives. Provide illustrative material to better present the pilot area (maps, photographs, etc.). The PROMONT project focuses on ADRION rural mountainous areas with unique biodiversity threatened by overexploitation, unsustainable economic activities, and seasonal mass tourism. Its main objective is to protect and regenerate fragile ecosystems by promoting environmental protection and regeneration actions involving and empowering local communities and stakeholders. Mention the biodiversity elements present in the pilot area and the pressures they face, along with opportunities for sustainable economic development that respect and enhance local ecosystems. [max 500 words]*

Mt Olympus is one of the most important floristic areas of Greece. Nineteen habitat types according to the European Union 92/43/EEC are found in the area, two of which are priority habitats, while the types of habitats in the alpine zone are of particular importance. The flora of Mount Olympus is extremely rich and includes many important species. In total, over 1,700 species of plants have been recorded, which represent 25% of the entire Greek flora. Of these, more than 160 plant taxa either belong to some protection regime or are rare or endemic. In the area of Olympus, 135 species of birds have been recorded, of which 34 are protected under Annex I of the EU Birds Directive 2009/147/EC, while others are included in the Red Book of Threatened Animals of Greece, 40 species of mammals, 10 species of amphibians and 24 species of reptiles. In particular, the steno-endemic chasmophyte *Jankaea heldreichii* is of particular interest, as it is a plant relic of the Ice Age.

Also, four distinct vegetation zones have been identified on Olympus, while high semi-Mediterranean pine forests with clumps of Bosnian pine (*Pinus leucodermis*), forms the highest forest upper limit in the Balkans, and one of the highest in whole Europe.

The terrestrial area of Mt Olympus is a totally protected area, as it has been designated as a National Park since 2021 by Presidential Decree (610/D/2021 - Government Gazette).

Mount Olympus National Park and its wider area, occupies an area of approximately 40,000 ha and is geographically located in the northern part of Greece. Its eastern side is administratively under the Regional Unit of Pieria, Region of Central Macedonia (Municipality of Dion - Olympus and Municipality of Katerini) and its Western side is under the Regional Unit of Larissa, Region of Thessaly (Municipality of

Elassona). For a visual representation of the park's boundaries, protection zones, and administrative divisions, refer to **Appendix A: Map of Depiction of All Overlapping Existing Zonation of Mt Olympus National Park.**

Within the area of National Park, the permanent presence of the human population is very limited, as the one and only existing settlement is the New Holy Monastery of Saint Dionysios of Mt Olympus, with a total of 25 inhabitants. Settlements exist only outside of Mt Olympus National Park boundaries. In specific, there are 8 settlements and have a total population of around 4300 inhabitants. The Management Unit of Mt Olympus National Park has demonstrated significant capacity in implementing international monitoring programs. Since 2021, Mt Olympus has been integrated into the GLORIA network (Global Observation Research Initiative in Alpine Environments), marking a major milestone in systematic climate change monitoring. Through this collaboration with the Forest Research Institute of ELGO-DIMITRA, the Management Unit established 64 permanent 1x1m vegetation plots and 32 larger summit plots across four summits at elevations between 2,083 and 2,808 m, along with 16 soil temperature sensors recording data at hourly intervals. This GLORIA initiative represents the Management Unit's commitment to science-based conservation and international cooperation, providing standardized long-term data on alpine biodiversity responses to climate change. The expertise gained through GLORIA implementation strengthens the institutional capacity for the systematic monitoring actions proposed in this Local Action Plan.

In Mt Olympus National Park there are no secondary sector activities (i.e. industry- manufacturing, processing), while mainly activities supporting processing (storage, packaging, transport) take place in its wider area.

The main anthropogenic activity that could exert pressure on the region is tourism. Yet, it is primarily localized in the most accessible low-altitude region, where most paths and tourism activity (climbing, caving, hiking, horseback riding, cultural and sporting activities) are concentrated. Additionally, there is a risk of environmental damage in cases of improper and disorganized handling of tourist waste and sewage produced in shelters. However, tourism and mountaineering seem to have a positive impact as they limit the poaching, as reflected in the recovery of the Balkan chamois population.

Other anthropogenic actions that occur in the area that could exercise pressure in the ecosystem are, for example, animal husbandry, which could cause pollution. This activity is carried out mainly in lower altitudes of the broadleaf evergreen forests, by livestock farmers from the surrounding areas. Uncontrolled grazing and the presence of herds in sensitive areas of the protected area, might have a negative impact on the vitality of the vegetation and especially on the population status of endemic species of sub-alpine and alpine meadows. However, according to data recorded, the prohibition of livestock breeding on a large scale, which had also been implemented with the installation of a fence, led to a decrease of grazing in the higher zones.

## 2. Overview of the Local Action Plan

*This section provides a general overview of the Local Action Plan, outlining its purpose, scope, and strategic approach. It summarizes the key thematic areas addressed, the expected outcomes for the pilot area, and how the plan integrates environmental, socio-economic, and cultural dimensions. The overview serves as a bridge between the contextual framework and the detailed action descriptions, giving readers a clear understanding of the LAP's overall direction before exploring specific measures. [max 300 words]*

The local action plan of Mount Olympus is subdivided in three individual actions, although these actions lead to the same purposes and scopes, that is the protection of National Park's biodiversity and the normalization of the coexistence between visitors, local stakeholders and the wild life, through knowledge, awareness and respect to the rules of natural evolution and the grade of resources exploitation.

The three above-mentioned actions are:

1. Identification of distribution areas, monitoring and assessment of touristic flow and activities impacts in the population size and conservation status of *Jancaea heldreichii* (Boiss.) Boiss.
2. Monitoring of the population structure and nutritional behavior of Balkan chamois in Mt Olympus and evaluation of the risks from increasing human presence in its habitats.
3. Investigation of the frequency of brown bear's (*Ursus arctos*) presence in Mt Olympus, the routes it uses and conflicts that may exist between this species and the humans.

More specifically, *Jancaea heldreichii* is a Greek local endemic found only on Olympus Mountain and showing habitat specificity for relatively damp and shady crevices of limestone cliffs, which essentially limits its distribution. The conservation value of *J. heldreichii* is high, as a local endemic with specific habitat requirements and having medicinal and other uses, which leads to uncontrolled collection of its specimens from the wild. The Local Action Plan aims to contribute to the protection of this very important species by locating and mapping the places of its appearance, identifying its critical habitats, determining the ecological density of the appearance sites and implementing a systematic monitoring program.

Balkan chamois is an endemic species of Balkan Peninsula and a subspecies of the Balkan Wild Goat (*Rupicapra rupicapra*), found in the mountains of southern and central Europe and the Caucasus. It is the most characteristic and distinctive mammal species of Olympus Mountain, as it can be seen and approached very easily at the higher altitudes of the mountain, where its habitats are located. Local Action

Plan focuses on identifying the main distribution cores of the wild goat's population during the year, to reflect its structure and to investigate the feeding behavior of the species and specifically whether pressures are exerted on the endemic rare plants of Olympus in combination with the pressures of human presence.

Finally, the brown bear is a species with periodic presence on Mt Olympus, mainly in the western-northwestern part of the mountain. The Local Action Plan is designed to clarify the main characteristics of the species activity (desired habitats, more frequent routes etc.) in Mt Olympus and whether stay in constant conflict with humans to survive or the recorded attacks in livestock and beehives are random incidents.

### 3. Common methodology followed for the design of the Local Action Plan

*In this section, clearly explain how the planned actions contribute to PROMONT's objectives; protecting mountain ecosystems, empowering local communities, supporting the local economy, and strengthening the transnational network of mountain stakeholders. Outline the steps taken to prepare this Local Action Plan, ensuring alignment with PROMONT's collaborative, science-based, and transnational approach. Describe stakeholder engagement at local, regional, and transnational levels, the biodiversity data collection process (e.g., drone-based cameras, GIS mapping), and the analysis of ecological and socio-economic needs. Highlight the role of stakeholder engagement and data sharing in ensuring alignment with the transnational methodology and maximizing replicability. Mention participatory workshops, good practice transfer from other areas, and the co-design of biodiversity protection and regeneration actions.*

[max 300 words]

The scheduled actions of the Local Plan Action are planned to contribute and to serve both the protection and preservation of flora and fauna's biodiversity of Mount Olympus, by implementing systematic and targeted monitoring procedure, keeping at the same time local communities and stakeholders aware for the importance of species and specifically rare species preservation and the added value that this preservation and generally the stability of natural ecosystems provides in local areas and communities that live in the surroundings.

*Jancaea heldreichii* can be safely considered as one of the (many) reasons that attracts many visitors in Mt Olympus in order to find it, to take photos, to examine it and in some cases to collect it, because of its rarity. The action by using basically GIS platforms, mapping and previous years records of species presence

will define the distribution range of the species, will detect the pressures being placed and assess the quality and the quantity of its population, involving at the same time crucial local stakeholders such as Management Body of Mt Olympus National Park, Municipality of Dion-Olympus, managers of the mountain refuges and mountain guides/leaders in raising awareness of the public and visitors and providing the information that will become from the scientific process.

Balkan chamois has developed over the years a significant and constantly increasing population in the highest altitudes of Mt Olympus, becoming increasingly adapted in human presence. This may lead to a misunderstanding about the species tolerances in human carrying capacity in their habitats and the grade of occupation of their living space. The action using mainly high quality telescopes with photo cameras and drone-based cameras, will study the nutritional habits and behavior of the species and the crucial information will be spread to the entities that are entrusted both with the management of the natural elements and the visitors, such as Management Body of Mt Olympus National Park, managers of the mountain refuges and mountain guides/leaders and will ensure that this coexistence, won't cause any degradation or movement in chamois population.

The issues with brown bear in Mt Olympus occurred in the last 10 years when this species, in its try to re-colonize the region, caused damage to several infrastructures of the region. This species was very common in Mt Olympus in the decades of '50 or 60' when livestock farming was rather extended and the human presence concerned exclusively similar economic activities such as logging, collecting fruits and other secondary forest products (resin), etc. This action will monitor and detect the most favorable habitats and most used routes of brown bear by placing high quality cameras traps in properly selected places and shooting night video recordings by drone-based cameras, in order to assess the amount of species population and needs, and finally preserve it in the mountain, by keeping at the same time people and exploitations safe from any attacks.

The methodological approach adopted in this Local Action Plan builds upon the GLORIA network, where standardized protocols, permanent monitoring plots, GIS-based spatial analysis, and long-term data collection have been effectively implemented since 2021. The GLORIA framework has demonstrated that systematic, repeatable monitoring in challenging mountain environments is feasible and produces high-quality scientific data suitable for both conservation management and international research networks.

## 4. Local Action Plan Synthesis Table

*Fill in the table with the appropriate information.*

Action Code	Action Title	Objective	Responsible Organization(s)
LP_01	Identification of distribution areas, monitoring and assessment of touristic flow and activities impacts in the population size and conservation status of <i>Jancaea heldreichii</i> (Boiss.) Boiss	Protection and preservation of Mt Olympus biodiversity and its unique natural elements, creation and development of a concrete scientific data base about the species, implementing a systematic monitoring procedure and raising awareness in visitors, tourists and local stakeholders concerning the ecology and the great importance of this species, which is an Ice Age relic found only in Mt Olympus and nowhere else.	LP
LP_02	Monitoring of the population structure and nutritional behavior of Balkan chamois in Mt Olympus and evaluation of the risks from increasing human presence in its habitats	Assessment of the Conservation Status and other parameters of the wild goat in Mt Olympus, identification of possible positive or negative trends of its expand and populations, evaluation of the coexistence situation between the species and humans considering the increasing touristic flows, the limited area and the nutritional needs of the species, and inform the crucial stakeholders about the species population quality and quantity, its habits and threats.	LP
LP_03	Investigation of the frequency of brown bear's ( <i>Ursus arctos</i> ) presence in Mt Olympus, the routes it uses and conflicts that may exist between this species and the humans	Confirmation of the voluntary reintroduction of the species in Mt Olympus determination of its preferable habitats and routes, detection of all the exploitations located near them, effectively dealing with bear approaches in residential areas, and improving the condition of coexistence between the species and humans in order to preserve its presence in a totally safe mode.	LP
LP_04	Digital awareness platform for Olympus biodiversity protection	Enhance visitor awareness and engagement through a digital platform that provides accessible, science-based information on Olympus species, promoting biodiversity protection, ecosystem regeneration, and	LP

		sustainable tourism practices in the National Park.	
PPx_01	...	...	PPx
PPx_02	...	...	...
PPx_03	...	...	...

## 5. LAP Actions Worksheets

*Provide detailed information for each action using the structure below.*

<b>Action</b>	LP_01
	Identification of distribution areas, monitoring and assessment of touristic flow and activities impacts in the population size and conservation status of <i>Jancaea heldreichii</i> (Boiss.) Bois
	<p>This action aims to protect, preserve and promote the biodiversity of the protected area of Mt Olympus, targeting in one of the most rare and important flora species that survived Ice Age in Mt Olympus refuge, and its presence there is unique worldwide. The conservation value of <i>J. heldreichii</i> is high, as a local endemic with specific habitat requirements and is reflected in its inclusion in the first edition of the Red Data Book of Rare and Threatened Plants of Greece, in the Annex IV of the Council Directive 92/43/EEC and in the Greek Presidential Decree 67/1981 for the protection of specific flora and fauna species.</p> <p>The action includes systematic monitoring of the species, which starts with the mapping of all confirmed forms of bibliographical references, places of presence and types of habitats. Then, by conducting several field inspections in months April, May and June, when flowering starts, the above places will be checked, as well as other places which meet the requirements of species growth and regeneration (mainly in damp and shady crevices of limestone cliffs), in order to record all the sites that this species exist in Mt Olympus and the exact numbers of its individuals.</p> <p>The next step is to connect the distribution range and places of presence with the existing mountain trail network and sites with recreational infrastructure in Mt Olympus, viz places which are subject to significant touristic pressure and where the species individuals can be easily destroyed because of lack of knowledge or illegally collected by connoisseurs of its rarity and value.</p>

	<p>Right after the end of the touristic period and once again before the start of the new one, field inspections will take place in all the sites that Jancaea has recorded, in order possible damage or degradations of species' population quality to be registered in detail. The final step is to inform and to provide scientific findings into the main stakeholders and especially the Management Body of Mt Olympus National Park, the forest service and the bureau of tourism of the Municipality of Dion-Olympus. Additional stakeholders which contribute in visitors management such as managers of the mountain refuges, mountain guides/leaders and mountaineering/naturalist clubs will also be informed in order to control tourists behavior, to lead them passing the places of species presence without causing any disturbance and to inform them about the significance of the species protection and preservation, as well as overall biodiversity of Mt Olympus.</p>
<p><b>Objective(s)</b></p>	<p>The purpose of this action is by implementing a systematic monitoring procedure to define the distribution area of Jancaea heldreichii, to spot the exact sites that are regenerated and grown in Mt Olympus and finally to assess the Conservation Status of the species as well as the structure and differentiation of its populations.</p> <p>The results will be a valuable contribution in the most accurate assessment of its conservation status, by providing the respective knowledge, while knowledge on the structure and differentiation will facilitate the identification of populations in priority for conservation.</p> <p>This knowledge will be transferred to the local community via local stakeholders to ensure that even mass tourism, when managed according to principles of sustainability and with respect to scientific data, can't be a threat for the biodiversity of a specific area and not even for one separate species.</p>
<p><b>Background information</b></p>	<p>Mt Olympus hosts exceptional biodiversity, including several endemic and threatened species, thus is designated as a National Park and as a Protected Area that belongs to the European Ecological Network NATURA 2000, both as Special Area of Conservation (SAC) of species and habitats and as a Special Protection Area (SPA) for avifauna species.</p> <p>In Mt Olympus in 2013-2015 the first large scale Monitoring Program for all the flora species was implemented, with the title "<i>Monitoring and assessment of the conservation status of flora species of community interest in the area of responsibility of the Olympus National Forest Management Body</i>" (2015). This was the first systematic (and not individual) record of flora species biodiversity, in Mt Olympus, which of course included Jancaea heldreichii as well, and its main purpose was to assess the Distribution Range and the Conservation Status of each species.</p> <p>Nevertheless, due to limited timeframe and the huge amount of flora species that needed to be monitored and registered, Jancaea heldreichii was not studied throughout its entire range of distribution, resulting in gaps in the recording its presence today in Mt Olympus. Also, within the framework of this National Program, there was no provision for any involvement or information/updating of the local stakeholders about the monitoring results, the endangered species, the Conservation Status etc.</p> <p>The PROMONT action will fill these gaps of knowledge and communication, at least for one flora species which is of great importance and characterizes the biodiversity of the whole mountain.</p>

<p><b>Associated Attribute</b></p>	<p>This Action is directly linked to the natural attribute of Mount Olympus’ exceptional biodiversity, which includes numerous endemic plant species, iconic fauna, and habitats recognized under the Natura 2000 network. These ecosystems are not only of ecological importance but also form the basis of the mountain’s global recognition as a UNESCO Biosphere Reserve, underpinning both cultural identity and tourism-driven livelihoods in the surrounding communities. Their significance lies in maintaining ecological integrity, supporting ecosystem services such as water regulation, and sustaining a nature-based economy that benefits local businesses, guides, and residents.</p> <p>Currently, the challenge is that these attributes are under growing stress from unmanaged visitor flows. Tourism is a critical socio-economic driver, but lack of widespread awareness about species sensitivity leads to behaviors that threaten habitat quality, e.g., off-trail walking, collection of plants, and disturbance during breeding seasons. While conservation frameworks exist, their effectiveness is constrained by the limited accessibility of information and official guidance. This gap results in a disconnect between conservation knowledge and visitor practices on the mountain.</p> <p>In this context, there is clearly untapped potential in using digital tools to translate scientific knowledge into practical visitor guidance. Correctly transmitted information based on detailed and precise monitoring procedures can transform Mount Olympus’ biodiversity into a shared community asset, enabling responsible tourism, reducing ecological disturbance, and creating new opportunities for education and interpretation. This strengthens the pilot area’s sustainability by aligning ecological protection with local socio-economic development.</p>
<p><b>Priority</b></p>	<p>High</p>
<p><b>Responsible Staff</b></p>	<p>Triantafyllos Bitos Forester - CEO &amp; GIS specialist at Management Unit of Olympus National Park / OFYPEKA email: botrs1313@gmail.com</p>
<p><b>Involved Actors</b></p>	<ul style="list-style-type: none"> <li>- The Management Body of Mount Olympus National Park will lead the monitoring procedure based on the experience gained in the previous National (2013-2015) and direct labor Monitoring Programs.</li> <li>- Forest Directorate of Pieria may contribute with its expertise, as this agency carried out, supervised and finally received the Special Environmental Study of Mt Olympus National Park.</li> <li>- The Municipality of Dion-Olympos may facilitate local coordination and information distribution with visitor services.</li> <li>- Local NGOs specializing in biodiversity and cultural heritage will contribute expertise on species profiles and awareness campaigns.</li> <li>- Tourism associations, local guides, and SMEs will support dissemination and practical use among visitors.</li> <li>- Citizen groups and schools will engage in testing and feedback.</li> </ul>
<p><b>Cost</b></p>	<p>Approximately €25,000 - €35,000. Including:</p>

	<ul style="list-style-type: none"> <li>- Personnel costs: Specialized botanists and field technicians for multiple survey campaigns (April-June flowering periods, post-tourism assessments) over 17-22 months</li> <li>- Equipment: GPS devices, high-resolution cameras for documentation, field measurement tools, botanical sampling equipment</li> <li>- GIS and data management: Software licenses, database development, map production, data analysis</li> <li>- Field logistics: Transportation to remote sites, accommodation during multi-day surveys, safety equipment for accessing limestone cliffs</li> <li>- Stakeholder engagement: Organization of information sessions with refuge managers, mountain guides, tourism operators, and production of awareness materials</li> <li>- Reporting and publications: Scientific documentation, technical reports for NECCA and Ministry, educational materials</li> </ul>
<p><b>Funding possibilities</b></p>	<p>A wide range of funding opportunities exists to support the Action. At the European level, programmes such as Interreg, LIFE, Horizon Europe, Digital Europe, Erasmus+, and Creative Europe provide avenues for financing biodiversity protection, digital innovation, and sustainable tourism initiatives. At the national and regional level, resources from the Greek Green Fund, the Recovery and Resilience Facility, HFRI, and the ERDF Operational Programme of Central Macedonia can co-finance research, awareness campaigns, and digital transition. Additionally, the "Environment and Climate Change Programme" 2021-2027 (PEKA 2021-2027), which is exclusively managed by NECCA (Natural Environment and Climate Change Agency) together with the Ministry of Environment and Energy, is highly relevant as it is likely to include actions for species monitoring aligned with the objectives of this Local Action Plan. Local authorities such as the Municipality of Dion-Olympos and Pieriki Anaptixiaki can contribute to implementation and long-term maintenance.</p>
<p><b>Time schedule</b></p>	<p>The Action is expected to last from 17 to 22 months, structured around clearly defined milestones that ensure a logical flow and effective stakeholder involvement. During the preparatory phase (approx. 4-5 months) work will focus on collecting data from all the existing records, registers and information about <i>Jancaea heldreichi</i> presence or possible presence in Mt Olympus as well as from the baseline information on species and habitats (including IUCN Red List data), and then mapping the data in GIS platforms in order to produce maps that lead the work teams in the field.</p> <p>Then (approx. 3 months), the next stage includes several field inspections, to detect and record potentially all the sites in Mt Olympus that the examined species are observed. These sites will be marked and secured mainly by their coordinate positions. In this stage, places of species presence that are subject to increase visitor flow will be defined, in order, in the next phase to assess the real and the possible impacts.</p> <p>The next phase will follow (approx. 2-4 months), comprising field inspections in the same places and especially in the places that are under the greatest pressure, in order a first assessment of visitors' affection in species population take place.</p>

	<p>Next (approx. 6-8 months), the field inspections will be repeated once again, so that the collected data emerge from two flowering periods followed by touristic pressure in a row.</p> <p>Within the final phase (approx. 2-3 months), the Action will concentrate on rollout, training sessions for guides, schools, and SMEs, as well as the first monitoring cycle to track uptake and effectiveness against key performance indicators.</p>
<p><b>Key Performance Indicators</b></p>	<ul style="list-style-type: none"> <li>- KPI<sub>1</sub>: Number of threatened species (IUCN Red List) featured with updated profiles in the app and portal (targeted value: 1 species)</li> <li>- KPI<sub>2</sub>: Number of places of species presence in its distribution range in Mt Olympus (targeted value: 100)</li> <li>- KPI<sub>3</sub>: Number of individuals of the species in Mt Olympus (targeted value: ≥ 4.000)</li> <li>- KPI<sub>4</sub>: Grade consideration of species Conservation Status in Mt Olympus (targeted value: Excellent - A)</li> <li>- KPI<sub>5</sub>: Number of local stakeholders informed (targeted value: ≥ 6 stakeholders)</li> </ul>
<p><b>Risk Management</b></p>	<p>Environmental risks include potential damage to plant populations during field surveys if not conducted carefully (likelihood: low; impact: medium), mitigated through trained personnel and established protocols. Weather conditions may limit field access during critical flowering periods (likelihood: medium; impact: medium), addressed through flexible scheduling and extended monitoring windows.</p> <p>Socio-economic risks involve resistance from tourism operators who fear restrictions on visitor access (likelihood: medium; impact: medium), mitigated through early consultation emphasizing that sustainable management protects long-term tourism attractiveness. Illegal collection by plant enthusiasts remains a concern (likelihood: medium; impact: high), requiring enforcement cooperation with forest authorities and awareness campaigns.</p> <p>Operational risks include insufficient botanical expertise for accurate species identification and population assessment (likelihood: low; impact: high), addressed through partnership with academic institutions and experienced field botanists. Data management challenges may arise from integrating diverse information sources (likelihood: medium; impact: low), mitigated through standardized GIS protocols and database design.</p> <p>Financial risks center on limited funding for multi-year monitoring continuity (likelihood: medium; impact: high), requiring integration into regular park management budgets and pursuing long-term financing mechanisms.</p>
<p><b>Current Status</b></p>	<p>The Action is in the early planning phase. The Management Unit of Mt Olympus National Park, now operating under NECCA's Protected Areas Management Directorate (Sector A), has substantial experience from implementing monitoring programs on habitats, flora, avifauna, mammals, amphibians/reptiles focusing on protected species of European Community Interest. Preliminary desk research has been conducted reviewing existing botanical records from the 2013-2015 National Monitoring Program ("Monitoring and assessment of the conservation status of flora species of community</p>

	<p>interest in the area of responsibility of the Olympus National Forest Management Body") and scientific literature on the species.</p> <p>Additionally, the Management Unit has been collaborating with the Forest Research Institute of ELGO-DIMITRA since 2021 on the GLORIA network initiative, which has established permanent monitoring plots and soil temperature sensors at four summits (elevations 2,083-2,808 m) to track climate change impacts on alpine vegetation. This existing GLORIA infrastructure and methodology provides a valuable complementary framework and demonstrates institutional capacity for systematic long-term monitoring. Initial consultations within NECCA have confirmed the priority status of this action for endemic species conservation.</p> <p>GIS data compilation from previous surveys is underway, leveraging the Management Unit's established GIS capabilities. However, detailed field methodology specific to <i>J. heldreichii</i>, equipment procurement for species-targeted surveys, and comprehensive stakeholder engagement protocols are yet to be finalized. No field surveys have been conducted under this specific action framework. The action requires immediate progression to preparatory phase to align with seasonal requirements (April-June flowering period), and can build upon existing monitoring expertise and collaborative relationships with research institutions already established through ongoing programs.</p>
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<b>Action</b>	LP_02
	Monitoring of the population structure and nutritional behavior of Balkan chamois in Mt Olympus and evaluation of the risks from increasing human presence in its habitats.
	<p>This action also focuses on protection, preservation and promoting the biodiversity of the protected area of Mt Olympus, targeting this time in the most significant and most recognizable fauna species, the Balkan chamois.</p> <p>The Balkan chamois (<i>Rupicapra rupicapra balcanica</i>) is an important subspecies of European fauna, present in mountainous areas of mainland Greece, and with significant ecological value.</p> <p>The species is listed in Annexes II and IV of the Habitats Directive 92/43/EEC and in Annex III of the Bern Convention on the Conservation of European Wild Fauna and Natural Habitats. It is characterized by population isolation, habitat shrinkage, and human-induced pressures, such as poaching and habitat disturbance and is classified in the Red Book of Threatened Animals of Greece as Near Threatened (NT).</p> <p>The action includes systematic monitoring of the species, in order firstly to identify the main distribution cores of the wild goat during the year, as the distribution areas differ seasonal depending on the available food and of course the extremely harsh climate conditions, which are very often in the higher altitudes of the mountain, and secondly to assess with relative accuracy, the number of individuals of the species.</p> <p>The next stage is two-fold and consists of investigation of possible poaching incidents through camera traps that will be placed in properly chosen points and investigation of</p>

	<p>the feeding behaviour of the species and specifically whether pressures are exerted on the endemic rare plants of Olympus.</p> <p>The next step is to explore the environmental and human-disturbance factors that drive its seasonal habitat selection process. The main habitat of Balkan chamois in Mt Olympus is located in 2.650,00 - 2.750,00 m altitude in Muses Plateau, which is exclusively covered by rare grassland habitat types of great importance for the mountain's biodiversity. These habitat types, except that they are the main food source for the species, are very sensitive and must remain undisturbed from human activities, to struggle for their survival in winter season, when they are fully covered from snow and ice.</p> <p>On any occasion, the action also provides the interpretation of the findings under the climate change and conservation perspective.</p> <p>The final step is to inform and to provide the scientific findings both into the main stakeholders and especially the Management Body of Mt Olympus National Park and the Forest Directorate of Pieria and to additional stakeholders which not only contribute in visitors management, but also they are the only who have daily presence throughout the tourist season in the peaks of Mount Olympus and can control tourists behavior such as managers of the mountain refuges, mountain guides/leaders and mountaineering/naturalist clubs.</p>
<p><b>Objective(s)</b></p>	<p>Balkan chamois (<i>Rupicapra rupicapra balcanica</i>) is a protected species with an Inadequate-Bad (U2) conservation status in Greece and presents a scattered and fragmented distribution throughout the Balkan countries.</p> <p>In Greece, it forms 30 populations which are found in the Pindos Mountain range, in the mountains of Central Greece, in Mt Olympus, in Rhodope Mts and in some mountains of the N-NW borders of the country. The total number of individuals at the national level ranges between 1,330 and 1,765 individuals.</p> <p>The main pressure/threat for the wild goat is poaching, as hunting of the wild goat is prohibited (Law 86/69) throughout the country, however different kinds of pressures and threats are also significant depending on the specific region that the species exist.</p> <p>Especially in Mt Olympus pressures such as livestock farming in relation to the method and intensity of its practice under specific conditions, the fragmentation of its distribution, the genetic isolation of its populations and of course the disturbance from tourist activities and mountain sports are the main threats of the preservation of the species, while climate change is quite possible to differentiate the data so far.</p> <p>As it was written before, in Greece, the conservation status of the species according to the 4th National Report under Article 17 of Directive 92/43/EEC for the period 2013-2018 was assessed as "Unfavorable-Poor" (U2).</p> <p>In the light of the foregoing and according to the PROMONT purposes and scopes, the main objectives of this action are:</p> <ul style="list-style-type: none"> <li>- the mitigation of population reduction, of the fragmentation of its distribution range and the ensuring of its sustainability, by monitoring the population structure, its habits and needs and examining the main disturbances caused by human activities,</li> <li>- the investigation of the species' feeding behavior and specifically whether pressures are being exerted on the endemic rare plants of Olympus.</li> </ul>

	<ul style="list-style-type: none"> <li>- the conservation and restoration of critical habitats, especially of the sensitive grassland habitats of the sub-alpine zone of Mt Olympus, which provide the majority of the species diet,</li> <li>- the identification of possible positive or negative trends in the area and populations of the wild goat</li> <li>- the assessment of the Conservation Status (CS) and other parameters of the wild goat population</li> <li>- the strengthening of the scientific background and database, especially in terms of monitoring procedures,</li> <li>- and of course the raising of awareness among local communities and stakeholders, as the knowledge that will be gained from this action will be transferred in local community via local stakeholders in order to inform the visitors of the peaks for the importance of both the species preservation and its favorable habitats preservation, as the extinct of them will definitely lead to the degradation and the removal of its population from Mt Olympus.</li> </ul>
<p><b>Background information</b></p>	<p>No action plan or state scale concerted strategy for the species in Greece had been drafted or implemented until 2021. That year and after almost two years of preparations, the implementation of the National Action Plan (NAP) for Balkan chamois, started for the first time.</p> <p>The purpose of this National Action Plan (NAP) is to contribute towards ensuring the survival of the Balkan Chamois (<i>Rupicapra rupicapra balcanica</i>) by improving the species' Conservation Status at a national level, namely turning its current 'U2- I' status into 'U1- I'. Its main objectives involve the implementation of those measures that would safeguard and enhance the population size and the geographical distribution of the Balkan Chamois, at both the local and the national level. Specific objectives concern the chamois population at a both local and national level, its habitat characteristics, its distribution and range, its critical zones and ensuring the connectivity between isolated populations.</p> <p>A series of actions were proposed which were grouped into seven sets of Measures: Population Conservation &amp; Improvement, Conservation and Improvement of Habitat Status, Preservation/ Extension of Geographical Distribution and Reduction of Fragmentation, Institutional Framework (Legislation and Policy), Monitoring and Research, Public awareness and environmental education, international cooperation. The implementation of the NAP is expected to culminate in a significant reduction on the intention of the current pressures on the species, bringing along a 40% population increase (with a 6% annual increase), a 10% increase in its geographical distribution and a reduction of the current fragmentation levels.</p> <p>Specifically in Mt Olympus two monitoring procedures with different aims have been carried out already for the Balkan chamois. In the period 2013-2015 was implemented the first large scale Monitoring Program for all fauna species, with the title "<i>Monitoring and assessment of the conservation status of fauna species of community interest in the area of responsibility of the Olympus National Forest Management Body</i>" (2015). This was the first systematic (and not individual) record of fauna species biodiversity, in Mt Olympus, which of course included <i>Rupicapra rupicapra balcanica</i> as well, and its main</p>

	<p>purpose was to assess the Distribution Range and the Conservation Status of each species.</p> <p>In the 2021-2023, within the framework of the Operation Programme "Central Macedonia" 2014-2020 ( extended 2019-2023), a second, and much more targeted to the species, monitoring procedure was processed by the current Management Body of Mt Olympus National Park (NECCA) with the title <i>"Provision of services by specialized scientists for the recording of the main distribution cores and land uses of the wild goat (Rupicapra rupicapra balcanica) in the Natura 2000 areas of the extended area of competence of the Olympus National Park Management Unit, within the boundaries of the Region of Central Macedonia"</i>.</p> <p>The main objectives of this project were: (a) The optimal adaptation of methodological field approaches and analyses as well as the adaptation of protocols to the requirements of the directives and in accordance with modern scientific developments, (b) the identification of possible positive or negative trends in the area and populations of the wild goat and (c) the evaluation of the Conservation Status (CS) and other parameters of the wild goat population in the two NATURA 2000 areas referred to in this declaration (GR1250001 &amp; GR1250003) where it has a significant presence, as referred to in the SDF (Standard Data Form).</p>
<p><b>Associated Attribute</b></p>	<p>This Action is directly linked to the natural attribute of Mount Olympus' exceptional biodiversity, which includes numerous endemic plant species, iconic fauna, and habitats recognized under the Natura 2000 network. These ecosystems are not only of ecological importance but also form the basis of the mountain's global recognition as a UNESCO Biosphere Reserve, underpinning both cultural identity and tourism-driven livelihoods in the surrounding communities. Their significance lies in maintaining ecological integrity, supporting ecosystem services such as water regulation, and sustaining a nature-based economy that benefits local businesses, guides, and residents.</p> <p>Currently, the challenge is that these attributes are under growing stress from unmanaged visitor flows. Tourism is a critical socio-economic driver, but lack of widespread awareness about species sensitivity leads to behaviors that threaten habitat quality, e.g., off-trail walking, collection of plants, and disturbance during breeding seasons. While conservation frameworks exist, their effectiveness is constrained by the limited accessibility of information and official guidance. This gap results in a disconnect between conservation knowledge and visitor practices on the mountain.</p> <p>In this context, it is very important to let people understand the interconnection between the preservation of a fauna species and the stability of its habitat which becomes from lack of disturbance, especially in cases where habitats are exposed to difficult weather and climate conditions for a long period of the year.</p> <p>The translation of scientific knowledge into practical visitor guidance will make clear to the visitors that the presence and the growth of grassland habitats is not guaranteed but is totally connected with Balkan chamois sustainability and staying tin the mountain.</p> <p>Correctly transmitted information based on detailed and precise monitoring procedures can transform Mount Olympus' biodiversity into a shared community asset, enabling responsible tourism, reducing ecological disturbance, and creating new opportunities for</p>

	education and interpretation. This strengthens the pilot area’s sustainability by aligning ecological protection with local socio-economic development.
<b>Priority</b>	High
<b>Responsible Staff</b>	Triantafyllos Bitos Forester - Head & GIS specialist at Management Unit of Olympus National Park / NECCA (Natural Environment and Climate Change Agency) email: botrs1313@gmail.com
<b>Involved Actors</b>	<ul style="list-style-type: none"> <li>- The Management Body of Mount Olympus National Park will lead the monitoring procedure based on the experience gained in the previous National (2013-2015), individual (2021-2023) and direct labor Monitoring Programs.</li> <li>- Forest Directorate of Pieria and Larisa may contribute with its expertise, as this agency has within its competences, wildlife management, treatment of poaching incidents and biosecurity, especially in terms of invasive species.</li> <li>- The Hunting Federation of Macedonia and Thrace and Thessaly as well, which can properly inform hunters for species’ great importance and for the undoubtable fact that hunting is not the only threat of Balkan chamois survival.</li> <li>- The managers and the owners of Mt Olympus refuges and particularly of those located in the altitude zone from 2.000 m to the peaks.</li> <li>- Mountain guides/leaders and mountaineering/naturalist clubs, as they lead many people to Mt Olympus every year and almost in all seasons, so they can more easily spread the critical information.</li> <li>- Local NGOs specializing in biodiversity and cultural heritage will contribute expertise on species profiles and awareness campaigns.</li> <li>- Tourism associations, local guides, and SMEs will support dissemination and practical use among visitors.</li> <li>- Citizen groups and schools will engage in testing and feedback.</li> </ul>
<b>Cost</b>	<p>Approximately €40,000 - €55,000.</p> <p>Including:</p> <ul style="list-style-type: none"> <li>- Personnel costs: Wildlife biologists, field ecologists, and technical staff for winter and summer field campaigns, overnight stays in high-altitude zones over 17-22 months</li> <li>- Specialized equipment: High-quality telescopes with integrated photo cameras (€5,000-8,000), professional drone with thermal/night-vision cameras (€8,000-12,000), camera traps for poaching detection</li> <li>- Field logistics: Transportation to high-altitude areas (2,650-2,750 m), refuge accommodation during extended observation periods, winter field equipment and safety gear</li> <li>- Data analysis: Population modeling software, behavioral analysis tools, GIS habitat mapping</li> <li>- Stakeholder coordination: Workshops with hunting federations, refuge managers, mountain guides, forest directorates, and farmers</li> <li>- Integration with National Action Plan: Reporting aligned with national monitoring protocols, contribution to national database</li> </ul>

	<p>Scientific outputs: Technical reports, peer-reviewed publications, conservation status assessment updates</p>
<p><b>Funding possibilities</b></p>	<p>A wide range of funding opportunities exists to support the Action. At the European level, programmes such as Interreg, LIFE, Horizon Europe, Digital Europe, Erasmus+, and Creative Europe provide avenues for financing biodiversity protection, digital innovation, and sustainable tourism initiatives. At the national and regional level, resources from the Greek Green Fund, the Recovery and Resilience Facility, HFRI, and the ERDF Operational Programme of Central Macedonia can co-finance research, awareness campaigns, and digital transition. Additionally, the "Environment and Climate Change Programme" 2021-2027 (PEKA 2021-2027), which is exclusively managed by NECCA (Natural Environment and Climate Change Agency) together with the Ministry of Environment and Energy, is highly relevant as it is likely to include actions for species monitoring aligned with the objectives of this Local Action Plan. Local authorities such as the Municipality of Dion-Olympos and Pieriki Anaptixiaki can contribute to implementation and long-term maintenance.</p>
<p><b>Time schedule</b></p>	<p>The Action is expected to last from 17 to 22 months, structured around clearly defined milestones that ensure a logical flow and effective stakeholder involvement. During the preparatory phase (approx. 4-5 months) work will focus on collecting data from all the existing records, registers and information about <i>Rupicapra rupicapra balcanica</i> presence in Mt Olympus, the estimated number of the individuals and its hibernation areas. Then we will follow the mapping procession of the data in GIS platforms in order to produce maps that lead the work teams in the field.</p> <p>Then (approx. 4 months depending on weather conditions), the next stage includes field inspections in wintertime, to identify the habitats and to record the individuals of the species in the central-northeastern region of its geographical distribution.</p> <p>Observations of the presence of the species will be recorded such as direct recordings (visual contacts with individuals of the species) and indirect recordings (biosignature traces, i.e. dung heaps and hoof prints). The main goal is to delimit the winter distribution range of the species, so poaching incidents would be checked and controlled more easily.</p> <p>The next phase will follow (approx. 3-4 months) will be carried out in winter time when the species moves to mountain peaks and comprises from several field inspections and overnight staying will take place as well, in order to assess the exact number of the species individuals and the structure of its population and to identify the most favorable habitats of the species, its nutritional habits, the way that visitors react and behave in the presence of the species and the grade of the visitors activity impact in species growth and preservation.</p> <p>Observations of the presence of the species will be recorded such as direct recordings (visual contacts with individuals of the species) and indirect recordings (biosignature traces, i.e. dung heaps and hoof prints).</p> <p>In the next two phases the field inspections will be repeated once again, so that the collected data emerge from two breeding periods followed by touristic pressure in a row. In this time the winter period will be replaced by a properly chosen autumn period.</p>

	<p>Within the final phase (approx. 2-3 months), the Action will concentrate on rollout, training sessions for guides, schools, and SMEs, as well as the first monitoring cycle to track uptake and effectiveness against key performance indicators.</p>
<p><b>Key Performance Indicators</b></p>	<ul style="list-style-type: none"> <li>- KPI<sub>1</sub>: Number of threatened species (IUCN Red List) featured with updated profiles in the app and portal (targeted value: 1 species)</li> <li>- KPI<sub>2</sub>: Number of places of species presence in its distribution range in Mt Olympus (targeted value: 5)</li> <li>- KPI<sub>3</sub>: Number of individuals of the species in Mt Olympus (targeted value: ≥ 350)</li> <li>- KPI<sub>4</sub>: Grade consideration of species Conservation Status in Mt Olympus (targeted value: Excellent - A)</li> <li>- KPI<sub>5</sub>: Number of local stakeholders informed (targeted value: ≥ 6 stakeholders)</li> </ul>
<p><b>Risk Management</b></p>	<p>Environmental risks include disturbance to chamois populations during monitoring activities, particularly during breeding and winter stress periods (likelihood: low; impact: medium), mitigated through observation from distance using quality optics and drone flights following strict protocols to minimize disturbance.</p> <p>Socio-economic risks involve potential conflicts with tourism interests if monitoring results recommend visitor restrictions in critical habitats (likelihood: medium; impact: medium), addressed through stakeholder engagement emphasizing the importance of chamois as a flagship species for nature tourism. Resistance from livestock farmers if grazing limitations are proposed (likelihood: low; impact: medium), mitigated through participatory dialogue and exploring alternative grazing arrangements.</p> <p>Operational risks include challenging weather conditions in high-altitude zones limiting field work effectiveness (likelihood: high; impact: medium), requiring flexible scheduling, proper equipment, and safety protocols. Insufficient technical capacity for behavioral analysis and population modeling (likelihood: medium; impact: medium), addressed through collaboration with wildlife research institutions and capacity building for park staff.</p> <p>Financial risks relate to the high costs of specialized equipment (telescopes, cameras, drones) and expert personnel (likelihood: medium; impact: high), requiring careful budget planning, equipment sharing arrangements, and phased procurement strategies.</p>
<p><b>Current Status</b></p>	<p>The Action is in advanced planning phase with substantial foundational work already completed. The Management Unit of Mt Olympus National Park, now integrated within NECCA's Protected Areas Management Directorate, has extensive experience implementing monitoring programs specifically targeting fauna species of European Community Interest. The Unit has successfully completed two major monitoring programs for Balkan chamois: the 2013-2015 national-scale program ("Monitoring and assessment of the conservation status of fauna species of community interest") and the more targeted 2021-2023 study titled "Provision of services by specialized scientists for the recording of the main distribution cores and land uses of the wild goat (<i>Rupicapra rupicapra balcanica</i>)" implemented within the Operational Programme "Central Macedonia" 2014-2020.</p> <p>Analysis of existing distribution data, population estimates (current population in Mt Olympus estimated at approximately 300-350 individuals), and habitat mapping from</p>

	<p>these programs provides a robust baseline. The Management Unit routinely carries out surveillance and patrolling of the area, which includes informal observation of chamois populations and their interaction with visitors in high-altitude zones, particularly around the Muses Plateau (2,650-2,750 m).</p> <p>Initial equipment inventory shows availability of some observation instruments from previous monitoring efforts, though additional investment in high-quality telescopes with photo cameras and drone technology is needed for detailed behavioral and nutritional studies. Preliminary stakeholder identification is complete, including refuge managers (who maintain daily presence during tourist season), mountain guides, hunting federations, and forest directorates. Informal discussions with these stakeholders have already occurred through routine park management activities.</p> <p>The Management Unit has established protocols adapted to Habitats Directive requirements and modern scientific developments. Staff capacity exists based on previous successful implementation, and coordination mechanisms with Forest Directorates of Pieria and Larissa are operational for wildlife management issues. The action is well-positioned to move to implementation phase pending final detailed protocol approval, resource allocation, and formal stakeholder engagement workshops. Integration with the National Action Plan for Balkan Chamois (initiated 2021) provides additional strategic framework and potential for data sharing at national level.</p>
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<b>Action</b>	LP_03
	Investigation of the frequency of brown bear's ( <i>Ursus arctos</i> ) presence in Mt Olympus, the routes it uses and conflicts that may exist between this species and the humans.
	<p>This action aims to investigate the conditions that characterize the voluntary reintroduction in Mt Olympus, as in all previous monitoring procedures that had been carried out in Mt Olympus this species occurred to be either absent or in a very rare or limited presence, which could be documented only by indirect recordings and biosignature traces such as tracks in the ground, droppings, vegetation disturbances (e.g. uprooted plants), or even scratched trees (claw marks) etc.</p> <p>The species was considered just to be passing through the mountain in order to reach its natural habitats in other mountain chains of Greek territory, even though according to historical data it used to live in Mt Olympus centuries ago as well as other big carnivores.</p> <p>However, in the last 7-8 years this status has changed significantly as many complaints and reports of bear presence and damages caused by them have been submitted and sent to authorities from citizens and inhabitants of settlements surrounding Mt Olympus.</p> <p>This action focuses on protection, preservation and promoting the biodiversity of the protected area of Mt Olympus, targeting a species which is threatened with extinction and is classified as a "priority species", being fully protected by European legislation. The conservation status of the species in Greece is classified as "endangered".</p>

	<p>The action includes systematic monitoring of the species by camera traps and drone-based video cameras and especially with shooting night video recordings, in order firstly to identify the main routes that uses to enter Olympus Mountain range and secondly to detect its favourable habitats.</p> <p>The next stage is two-fold and consists of placing camera traps in the surroundings of all the exploitations around the detected habitats (livestock farming, beehives etc), so that it would be possible to assess the exact number of individuals and the exact times of the year that the species seeks much of its food near villages and rural areas.</p> <p>The next step is to explore the environmental and human factors, negligence and omissions that allow bear's attacks, to receive certain measures to minimize damages from bears to the plant and agricultural capital of the inhabitants.</p> <p>The final step is to inform and provide the scientific findings both into the main stakeholders and especially the Management Body of Mt Olympus National Park and the Forest Directorates of Pieria and Larisa and to additional stakeholders who involve at any kind in the protection and management of this certain species such as Hunting Federations of Macedonia and Thrace and Thessaly, and to make clear that the preservation and the stay of the species in Mt Olympus is in high priority and the killing of wild animals (either in retaliation for an attack or as a way to avoid damage) is not a solution as preventive measures are always more desirable and truly effective.</p>
<p><b>Objective(s)</b></p>	<p>The primary objectives of this action are:</p> <ul style="list-style-type: none"> <li>- To confirm the voluntary reintroduction and establish permanent presence of brown bear (<i>Ursus arctos</i>) in Mt Olympus by systematically documenting occurrence patterns, population estimates, and habitat preferences.</li> <li>- To identify the main movement corridors and preferred habitats used by the species throughout the year, enabling targeted conservation measures and reducing human-wildlife conflicts.</li> <li>- To assess the nature and frequency of conflicts between brown bears and local communities, particularly regarding livestock and beehive damage, distinguishing between systematic predation patterns and opportunistic incidents.</li> <li>- To develop evidence-based mitigation strategies that enable coexistence between bears and humans, including recommendations for infrastructure protection, waste management, and community awareness programs.</li> <li>- To raise awareness among local stakeholders, including farmers, beekeepers, hunting associations, and tourism operators, about the ecological importance of brown bear conservation and practical measures to minimize conflicts while supporting the species' sustainable presence in the National Park ecosystem.**</li> </ul>
<p><b>Background information</b></p>	<p>Historically, brown bears were common inhabitants of Mt Olympus throughout the mid-20th century, particularly during the 1950s-1960s when extensive livestock farming, logging, and forest product collection created a landscape matrix that supported bear populations. However, habitat transformation, direct persecution, and reduced availability of traditional food sources led to local extinction by the late 1970s.</p> <p>During the systematic monitoring programs conducted in 2013-2015 for fauna species of community interest in Mt Olympus, brown bear was classified as either absent or exhibiting extremely rare and transient presence, documented only through indirect</p>

	<p>signs such as tracks, scat, claw marks on trees, and vegetation disturbances. The species was considered to be merely passing through the mountain range en route to more established populations in the Pindos Mountain chain.</p> <p>However, beginning around 2015-2017, there has been a notable increase in confirmed brown bear presence, particularly in the western and northwestern sectors of Mt Olympus. Multiple reports from local residents, farmers, and beekeepers document damage to apiaries, livestock predation, and direct sightings. These incidents suggest a voluntary recolonization process, possibly driven by population expansion from neighboring mountain ranges and improved habitat conditions following reduced human pressure in remote areas.</p> <p>The brown bear is listed in Annexes II and IV of the EU Habitats Directive 92/43/EEC, in Appendix II of the Bern Convention, and is strictly protected under Greek legislation (Presidential Decree 67/1981). In Greece, the species is classified as "Endangered" in the Red Data Book of Threatened Vertebrates. National estimates suggest a total population of 200-450 individuals, primarily distributed across the Pindos Mountain range, with smaller populations in Rhodope and increasing evidence of range expansion into previously unoccupied areas.</p> <p>No specific action plan for brown bear conservation in Mt Olympus exists, though the broader National Action Plan for Large Carnivores (if implemented) would provide framework guidance. The current situation requires immediate attention to establish baseline data, understand movement ecology, and develop coexistence protocols that balance conservation needs with legitimate concerns of local communities whose livelihoods may be affected by bear presence.</p>
<p><b>Associated Attribute</b></p>	<p>This Action is directly linked to the natural attribute of Mount Olympus as a biodiversity hotspot and potential corridor for large carnivore conservation within the broader Balkan ecological network. The presence of apex predators such as brown bear is an indicator of ecosystem health, habitat connectivity, and functional wilderness character.</p> <p>The significance of brown bear recolonization extends beyond the species itself. Bears serve critical ecosystem functions including seed dispersal, nutrient cycling through predation and scavenging, and regulation of prey populations. Their presence also enhances the conservation value and international recognition of Mt Olympus as a wilderness area, potentially supporting nature-based tourism focused on wildlife observation.</p> <p>Currently, the challenge lies in the absence of systematic knowledge about bear ecology in Mt Olympus, creating uncertainty for both conservation planning and local community responses. Livestock farmers and beekeepers face economic losses without adequate compensation or prevention mechanisms, leading to negative attitudes toward bear conservation and, in worst cases, illegal retaliatory killing. Simultaneously, the absence of reliable data prevents effective spatial planning, such as identifying zones requiring special management or seasonal restrictions.</p> <p>The untapped potential involves transforming this human-wildlife conflict situation into a coexistence model that benefits both conservation and local communities. By understanding bear habitat requirements, movement patterns, and conflict triggers, targeted interventions can be designed: electric fencing for apiaries and livestock corrals,</p>

	waste management improvements in vulnerable settlements, early warning systems, and compensation schemes. Moreover, the presence of this charismatic species offers opportunities for wildlife tourism development, environmental education programs, and enhanced park interpretation services, creating economic incentives for conservation while maintaining traditional livelihoods.
<b>Priority</b>	High
<b>Responsible Staff</b>	Triantafyllos Bitos Forester - Head & GIS specialist at Management Unit of Olympus National Park / NECCA (Natural Environment and Climate Change Agency) email: botrs1313@gmail.com
<b>Involved Actors</b>	<ul style="list-style-type: none"> <li>- The Management Body of Mount Olympus National Park will lead the monitoring procedure based on the experience gained in the previous National (2013-2015), individual (2021-2023) and direct labor Monitoring Programs.</li> <li>- Forest Directorate of Pieria and Larisa may contribute with its expertise, as this agency has within its competences, wildlife management, treatment of poaching incidents and biosecurity, especially in terms of invasive species.</li> <li>- The Hunting Federation of Macedonia and Thrace and Thessaly as well, which can properly inform hunters for species' great importance and for the undoubtable fact that hunting is not the only threat of Balkan chamois survival.</li> <li>- The managers and the owners of Mt Olympus refuges and particularly of those located in the altitude zone from 2.000 m to the peaks.</li> <li>- Mountain guides/leaders and mountaineering/naturalist clubs, as they lead many people to Mt Olympus every year and almost in all seasons, so they can more easily spread the critical information.</li> <li>- Local NGOs specializing in biodiversity and cultural heritage will contribute expertise on species profiles and awareness campaigns.</li> <li>- Tourism associations, local guides, and SMEs will support dissemination and practical use among visitors.</li> <li>- Citizen groups and schools will engage in testing and feedback.</li> </ul>
<b>Cost</b>	<p>Approximately €45,000 - €60,000.</p> <p>Including:</p> <ul style="list-style-type: none"> <li>- Personnel costs: Large carnivore specialists, wildlife biologists, field technicians for year-round monitoring including night surveys over 17-22 months</li> <li>- Specialized equipment: 15-20 high-quality camera traps with night-vision and motion sensors (€6,000-10,000), professional drone with thermal and night-vision capabilities for nocturnal monitoring (€10,000-15,000), GPS collars if capture opportunities arise (€3,000-5,000)</li> <li>- Field logistics: Access to remote western/northwestern sectors, accommodation, vehicle use for extensive area coverage, safety protocols for bear habitat work</li> <li>- Conflict mitigation pilot measures: Electric fencing demonstration units for apiaries/livestock (€3,000-5,000), waste management solutions for vulnerable settlements</li> </ul>

	<ul style="list-style-type: none"> <li>- Expert consultation: Partnership with large carnivore research institutions, training in bear behavior analysis and conflict mitigation</li> <li>- Stakeholder engagement: Intensive workshops with farmers, beekeepers, hunting federations, forest directorates, compensation scheme development</li> <li>- Emergency response capacity: Rapid response protocol development, communication systems for incident reporting</li> <li>- Scientific documentation: Movement pattern analysis, habitat suitability modeling, conflict assessment reports, integration with national/Balkan bear conservation networks</li> </ul>
<p><b>Funding possibilities</b></p>	<p>A wide range of funding opportunities exists to support the Action. At the European level, programmes such as Interreg, LIFE, Horizon Europe, Digital Europe, Erasmus+, and Creative Europe provide avenues for financing biodiversity protection, digital innovation, and sustainable tourism initiatives. At the national and regional level, resources from the Greek Green Fund, the Recovery and Resilience Facility, HFRI, and the ERDF Operational Programme of Central Macedonia can co-finance research, awareness campaigns, and digital transition. Additionally, the "Environment and Climate Change Programme" 2021-2027 (PEKA 2021-2027), which is exclusively managed by NECCA (Natural Environment and Climate Change Agency) together with the Ministry of Environment and Energy, is highly relevant as it is likely to include actions for species monitoring aligned with the objectives of this Local Action Plan. Local authorities such as the Municipality of Dion-Olympos and Pieriki Anaptixiaki can contribute to implementation and long-term maintenance.</p>
<p><b>Time schedule</b></p>	<p>The Action is expected to last from 18 to 24 months, structured around clearly defined milestones that ensure comprehensive year-round monitoring and effective stakeholder involvement. Given the species' wide-ranging behavior and seasonal movement patterns, a longer monitoring period is necessary compared to the other actions.</p> <p>During the preparatory phase (approx. 3-4 months) work will focus on collecting and analyzing all existing data from complaint records, incident reports submitted to Forest Directorates of Pieria and Larissa, and informal sighting documentation from the Management Unit's surveillance activities since 2015. Consultations with large carnivore experts and research institutions will inform protocol development. Initial stakeholder mapping will identify all affected farmers, beekeepers, and settlements in the western and northwestern sectors. Preliminary habitat suitability analysis using GIS will guide strategic placement of monitoring equipment. Equipment procurement (camera traps, night-vision drone) and technical training for staff will be completed in this phase.</p> <p>Then (approx. 4-5 months), the first monitoring cycle will begin with deployment of camera traps at strategically selected locations based on reported routes, habitat analysis, and proximity to conflict sites (livestock farms, apiaries). Drone-based night video surveys will be conducted monthly to identify preferred habitats and movement corridors. This phase focuses on the western-northwestern mountain sectors where bear presence has been most frequently documented. Initial data collection will establish baseline presence patterns and identify primary entry routes into the Mt Olympus range.</p>

	<p>The next phase (approx. 4-5 months) will expand monitoring coverage based on findings from the first cycle. Additional camera traps will be deployed around detected habitats and near all identified exploitations (livestock, beehives) in surrounding areas. This phase aims to capture seasonal variation in bear activity, particularly assessing whether attacks on livestock and beehives follow temporal patterns (e.g., pre-denning food gathering, post-denning spring emergence). Continuous monitoring through different seasons is critical to understand whether conflicts are random incidents or systematic patterns.</p> <p>Next (approx. 4-5 months), monitoring continues with focus on confirming individual bear identification (if possible, through distinctive features), assessing population size, and documenting human-bear interaction patterns. Investigation of environmental factors, human negligence, and infrastructure vulnerabilities that facilitate bear access to settlements will be conducted through field inspections and interviews with affected stakeholders. Pilot conflict mitigation measures (electric fencing demonstrations, waste management improvements) may be tested in selected high-risk locations.</p> <p>Within the final phase (approx. 3-4 months), the Action will concentrate on data synthesis, analysis of habitat preferences, route mapping, conflict pattern assessment, and development of comprehensive coexistence recommendations. Results will be presented to main stakeholders including the Management Body, Forest Directorates of Pieria and Larissa, Hunting Federations of Macedonia-Thrace and Thessaly, affected communities, and relevant ministries. Training sessions will be organized for forest guards, refuge managers, and local authorities on bear behavior, safety protocols, and conflict prevention. Educational materials emphasizing that preventive measures are more effective than retaliatory killing will be produced and distributed. Integration with any existing National Action Plan for Large Carnivores and connection to Balkan brown bear conservation networks will ensure broader impact and long-term sustainability of monitoring efforts.</p>
<p><b>Key Performance Indicators</b></p>	<ul style="list-style-type: none"> <li>- KPI<sub>1</sub>: Number of threatened species (IUCN Red List) featured with updated profiles in the app and portal (targeted value: 1 species)</li> <li>- KPI<sub>2</sub>: Number of places of species presence in its distribution range in Mt Olympus (targeted value: 3)</li> <li>- KPI<sub>3</sub>: Number of individuals of the species in Mt Olympus (targeted value: ≥ 4)</li> <li>- KPI<sub>4</sub>: Number of local stakeholders informed (targeted value: ≥ 4 stakeholders)</li> </ul>
<p><b>Risk Management</b></p>	<p>Environmental risks include potential disturbance to bear populations during monitoring activities, particularly during denning periods or when females are with cubs (likelihood: low; impact: high), mitigated through careful timing of field work, use of non-invasive monitoring methods (camera traps), and maintaining safe distances during drone operations. Habituation of bears to human presence due to monitoring activities (likelihood: low; impact: medium), addressed through minimizing direct contact and following established wildlife monitoring protocols.</p> <p>Socio-economic risks involve escalation of human-bear conflicts if monitoring reveals higher bear numbers than expected, potentially increasing fear and negative attitudes among local communities (likelihood: medium; impact: high), mitigated through transparent communication, community engagement workshops, and immediate</p>

	<p>implementation of conflict prevention measures alongside monitoring. Resistance from farmers and beekeepers who fear conservation measures will prioritize bears over their livelihoods (likelihood: high; impact: high), addressed through participatory approaches, exploring compensation schemes, and demonstrating practical prevention methods (electric fencing, secure waste management).</p> <p>Operational risks include technical challenges with camera trap deployment in remote, rugged terrain and potential equipment theft or vandalism (likelihood: medium; impact: medium), requiring strategic placement, camouflage techniques, and coordination with local communities to build trust. Difficulty in distinguishing individual bears and accurately estimating population size from camera trap data (likelihood: medium; impact: medium), mitigated through expert consultation, use of identifying features, and conservative estimation methods. Insufficient expertise in brown bear ecology and behavior analysis (likelihood: medium; impact: high), addressed through partnerships with specialized research institutions and wildlife biologists experienced in large carnivore studies.</p> <p>Financial risks center on high costs of specialized equipment (quality camera traps, night-vision drone cameras) and long-term monitoring requirements (likelihood: medium; impact: high), requiring careful budget allocation, potential equipment sharing with other conservation projects, and integration into national large carnivore monitoring frameworks. Risk of retaliatory killing of bears if conflicts continue without effective mitigation (likelihood: medium; impact: critical), necessitating rapid response protocols, emergency funding for prevention measures, and strong law enforcement collaboration.</p>
<p><b>Current Status</b></p>	<p>The Action is in conceptual phase responding to an emerging and urgent conservation priority. While the Management Unit of Mt Olympus National Park routinely implements monitoring programs on protected fauna species and carries out surveillance and patrolling to investigate illegal activities and preserve park resources, systematic monitoring specific to brown bear in Mt Olympus has not been undertaken to date.</p> <p>In the 2013-2015 National Monitoring Program for fauna species of community interest, brown bear was recorded as either absent or exhibiting extremely rare presence, documented only through indirect biosignature traces (tracks, scat, claw marks, vegetation disturbance). However, since approximately 2015-2017, there has been a significant increase in brown bear presence, particularly in the western and northwestern sectors of the mountain. Multiple reports and formal complaints regarding livestock predation, apiary damage, and direct sightings have been submitted to the Management Unit and Forest Directorates of Pieria and Larissa by local residents, farmers, and beekeepers from settlements surrounding Mt Olympus.</p> <p>These complaints are investigated as part of routine surveillance activities, but no systematic camera trap deployment, movement pattern analysis, or population assessment has been implemented. The Management Unit has identified potential monitoring locations based on reported incident areas and general habitat suitability, and maintains communication channels with affected communities through its enforcement and visitor management functions. Initial informal discussions with hunting federations have occurred regarding the species' conservation status and the prohibition of hunting.</p>

	<p>However, comprehensive stakeholder mapping, development of technical protocols for non-invasive monitoring (camera traps, night-vision drone surveys), equipment procurement planning, and dedicated funding identification remain to be completed. Staff have expertise in wildlife monitoring from other species programs, but specialized knowledge in brown bear ecology and human-wildlife conflict mitigation would benefit from partnerships with research institutions experienced in large carnivore conservation.</p> <p>The action requires urgent advancement to preparatory phase given: (a) the clear evidence of voluntary recolonization suggesting permanent presence is being established, (b) ongoing human-wildlife conflict situations affecting local livelihoods that could escalate without proper management and potentially lead to illegal retaliatory killing, and (c) the high conservation value of the species as an Annex II and IV species under the Habitats Directive, classified as "Endangered" in Greece's Red Data Book. Coordination with any existing National Action Plan for Large Carnivores and connection to broader Balkan brown bear conservation networks would strengthen implementation.</p>
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<b>Action</b>	LP_04
	Digital awareness platform for Olympus biodiversity protection
	<p>This action focuses on the development of a digital awareness platform in the form of a web portal and mobile application dedicated to the biodiversity of Mount Olympus National Park. Currently, visitors who wish to obtain official information on species, habitats, and conservation guidelines must visit the premises of the Management Body of Olympus National Park in Litochoro. While valuable, this model limits outreach, especially to tourists and hikers who explore the mountain independently.</p> <p>The proposed platform will provide easily accessible, science-based content on flora and fauna, with a particular focus on species listed as threatened or vulnerable according to the IUCN Red List. Information will be presented in an engaging, multilingual format combining textual descriptions, high-quality images, audio, and georeferenced maps. Features will include interactive species profiles, guidelines for responsible behaviour, seasonal alerts (e.g., breeding periods, fire risks), and recommendations for eco-friendly itineraries. By integrating local ecological data and linking to PROMONT's transnational objectives, the platform will raise awareness, foster sustainable tourism, and contribute to biodiversity regeneration. It will also serve as a capacity-building tool for local guides, schools, and community groups, encouraging citizen participation in conservation activities.</p> <p>Overall, this digital action bridges the gap between scientific knowledge and everyday visitor experience, empowering stakeholders to actively protect the unique ecosystems of Mount Olympus.</p>

<p><b>Objective(s)</b></p>	<p>The Action specifically seeks to overcome the current limitation that biodiversity information is mainly concentrated at the Olympus National Park Management Body premises in Litochoro, restricting access for the majority of visitors. By developing a digital application and portal, the objective is to broaden the reach of conservation knowledge so that hikers, tourists, and schools can access guidance anytime and anywhere. The tool will not only present species profiles, but also emphasize responsible visitor conduct, offering practical instructions on how to avoid habitat damage, respect seasonal restrictions, and reduce disturbance to wildlife. Another objective is to improve the visibility of local conservation priorities, ensuring that threatened species and fragile habitats become recognizable to the wider public. Finally, the platform will empower local guides and educators, providing them with a modern instrument to integrate biodiversity values into tourism and learning activities.</p>
<p><b>Background information</b></p>	<p>Mount Olympus hosts exceptional biodiversity, including several endemic and threatened species, yet the ecological status is under increasing pressure from tourism, seasonal peaks, and recreational activities that often overlap with sensitive habitats. While national legislation and the Olympus National Park Management Plan provide a strong protection framework, visitor awareness remains limited. In practice, many visitors arrive directly at trailheads without prior orientation, leading to disturbances such as off-trail hiking, waste generation, and disruption of breeding areas. Past projects have improved signage, produced printed material, and organized guided tours, but their reach has been narrow and dependent on physical presence. These gaps reveal the urgent need for a digital, widely accessible tool that delivers timely, location-relevant knowledge, enabling visitors to act responsibly and reducing mounting ecological stress.</p>
<p><b>Associated Attribute</b></p>	<p>This Action is directly linked to the natural attribute of Mount Olympus' exceptional biodiversity, which includes numerous endemic plant species, iconic fauna, and habitats recognized under the Natura 2000 network. These ecosystems are not only of ecological importance but also form the basis of the mountain's global recognition as a UNESCO Biosphere Reserve, underpinning both cultural identity and tourism-driven livelihoods in the surrounding communities. Their significance lies in maintaining ecological integrity, supporting ecosystem services such as water regulation, and sustaining a nature-based economy that benefits local businesses, guides, and residents.</p> <p>Currently, the challenge is that these attributes are under growing stress from unmanaged visitor flows. Tourism is a critical socio-economic driver, but lack of widespread awareness about species sensitivity leads to behaviors that threaten habitat quality, e.g., off-trail walking, collection of plants, and disturbance during breeding seasons. While conservation frameworks exist, their effectiveness is constrained by the limited accessibility of information and official guidance. This gap results in a disconnect between conservation knowledge and visitor practices on the mountain.</p> <p>In this context, there is clearly untapped potential in using digital tools to translate scientific knowledge into practical visitor guidance. A well-designed app and web portal can transform Mount Olympus' biodiversity into a shared community asset, enabling responsible tourism, reducing ecological disturbance, and creating new opportunities for education and interpretation. This strengthens the pilot area's sustainability by aligning ecological protection with local socio-economic development.</p>

<b>Priority</b>	Low-to-Medium
<b>Responsible Staff</b>	Triantafyllos Bitos Forester - CEO & GIS specialist at Management Unit of Olympus National Park / OFYPEKA email: botrs1313@gmail.com
<b>Involved Actors</b>	<ul style="list-style-type: none"> <li>- The Management Body of Mount Olympus National Park will lead to the development of user requirement, content validation and integration with conservation priorities.</li> <li>- The Municipality of Dion-Olympos may facilitate local coordination and link the tool with visitor services.</li> <li>- Local NGOs specializing in biodiversity and cultural heritage will contribute expertise on species profiles and awareness campaigns.</li> <li>- The International Hellenic University, along with other universities and research institutes will provide scientific data and ensure alignment with IUCN categories. Moreover, IHU, as a technology provider, may take over the design and technical development of the web platform and app.</li> <li>- Tourism associations, local guides, and SMEs will support dissemination and practical use among visitors.</li> <li>- Citizen groups and schools will engage in testing and feedback.</li> </ul>
<b>Cost</b>	Approximately €30,000. Including platform design, development, hosting and maintenance, content creation, data integration, development of promotional and training material for local guides, schools and SMEs, organization of outreach events.
<b>Funding possibilities</b>	A wide range of funding opportunities exists to support the Action. At the European level, programmes such as Interreg, LIFE, Horizon Europe, Digital Europe, Erasmus+, and Creative Europe provide avenues for financing biodiversity protection, digital innovation, and sustainable tourism initiatives. At the national and regional level, resources from the Greek Green Fund, the Recovery and Resilience Facility, HFRI, and the ERDF Operational Programme of Central Macedonia can co-finance research, awareness campaigns, and digital transition. Additionally, the "Environment and Climate Change Programme" 2021-2027 (PEKA 2021-2027), which is exclusively managed by NECCA (Natural Environment and Climate Change Agency) together with the Ministry of Environment and Energy, is highly relevant as it is likely to include actions for species monitoring aligned with the objectives of this Local Action Plan. Local authorities such as the Municipality of Dion-Olympos and Pieriki Anaptixiaki can contribute to implementation and long-term maintenance.
<b>Time schedule</b>	The Action is expected to last from 12 to 18 months, structured around clearly defined milestones that ensure a logical flow and effective stakeholder involvement. During the preparatory phase (approx. 2-3 months) work will focus on convening local stakeholders, collecting baseline information on species and habitats (including IUCN Red List data),

	<p>and finalizing the technical specifications for the digital platform. This sets the foundation for targeted content and a well-designed application.</p> <p>Then (approx. 2-3 months), the emphasis will shift to the design of the web portal and mobile app, alongside the preparation of species profiles, cultural narratives, and visitor guidelines. A prototype and draft content package will serve as the first tangible outputs.</p> <p>The development and integration phase will follow (approx. 4-6 months), involving the incorporation of GIS mapping, multilingual features, and interactive modules. Beta testing with schools, guides, and tourism stakeholders will ensure usability and relevance.</p> <p>Next (approx. 2-3 months), the platform will be completed and complemented by an awareness campaign to maximize outreach. The final deliverables will include the complete app, web portal, and supporting promotional and training materials.</p> <p>Within the final phase (approx. 2-3 months), the Action will concentrate on rollout, training sessions for guides, schools, and SMEs, as well as the first monitoring cycle to track uptake and effectiveness against key performance indicators.</p>
<p><b>Key Performance Indicators</b></p>	<ul style="list-style-type: none"> <li>- KPI<sub>1</sub>: Number of threatened species (IUCN Red List) featured with updated profiles in the app and portal (targeted value: 10 species)</li> <li>- KPI<sub>2</sub>: Number of visitors actively using the app/portal (measured via downloads, logins, or QR scans) (targeted value: 100)</li> <li>- KPI<sub>3</sub>: Visitor satisfaction with biodiversity information and awareness tools (measured through surveys and in-app feedback) (targeted value: 80% reporting improved understanding of conservation issues)</li> <li>- KPI<sub>4</sub>: Number of local stakeholders trained (targeted value: ≥ 50 stakeholders)</li> </ul>
<p><b>Risk Management</b></p>	<p>Action faces several risks across ecological, social, and operational dimensions.</p> <p>Environmental risks include potential disturbance to sensitive habitats or IUCN Red List species if increased visitor interest is not properly managed (likelihood: medium; impact: high). This will be mitigated by embedding seasonal alerts in the app, promoting designated eco-trails, and providing clear behavioral guidance.</p> <p>Socio-economic risks involve limited community engagement or reluctance of local businesses to adopt the platform (likelihood: medium; impact: medium). Early stakeholder involvement, participatory workshops, and co-branding opportunities will ensure stronger ownership.</p> <p>Operational risks include insufficient technical expertise for biodiversity content integration (likelihood: low; impact: medium), addressed through partnerships with universities, NGOs, and citizen science networks. Financial risks center on securing resources for long-term maintenance beyond project funding (likelihood: medium; impact: high). Mitigation involves diversifying funding sources (public, private, CSR, donations) and embedding maintenance within the Municipality's digital services strategy.</p>
<p><b>Current Status</b></p>	<p>The Action is currently at the concept stage, with discussions focused solely on the idea of creating a digital platform for visitor biodiversity awareness in Mount Olympus. No</p>

concrete steps, such as baseline studies, technical design, partnerships, or funding allocation, have been taken yet. The proposal has been acknowledged as relevant, but remains undeveloped, with responsibilities and long-term management still undefined. At this point, the action exists only as an initial concept, requiring further feasibility assessment and stakeholder engagement before moving toward preparation or implementation.

## Appendices

*Attach all relevant supporting materials that provide additional context or evidence for the Local Action Plan. These may include:*

- *Maps and spatial data: Geographic boundaries, protected areas, eco-itinerary routes, biodiversity hotspots.*
- *Technical reports and studies: Baseline biodiversity assessments, socio-economic analyses, feasibility studies.*
- *Stakeholder documentation: Lists of involved actors, signed agreements, workshop minutes, consultation records.*
- *Visual materials: Photographs, infographics, promotional material.*
- *Regulatory references: National/regional policies, conservation plans, planning permissions.*
- *Monitoring tools: Indicator sheets, data collection templates, survey questionnaires.*
- *Other relevant material and documentation.*

*Ensure that each appendix is clearly referenced in the main text and labelled for easy navigation by readers.*

## Appendix A

Map of Depiction of All Overlapping Existing Zonation of Mt Olympus National Park.

